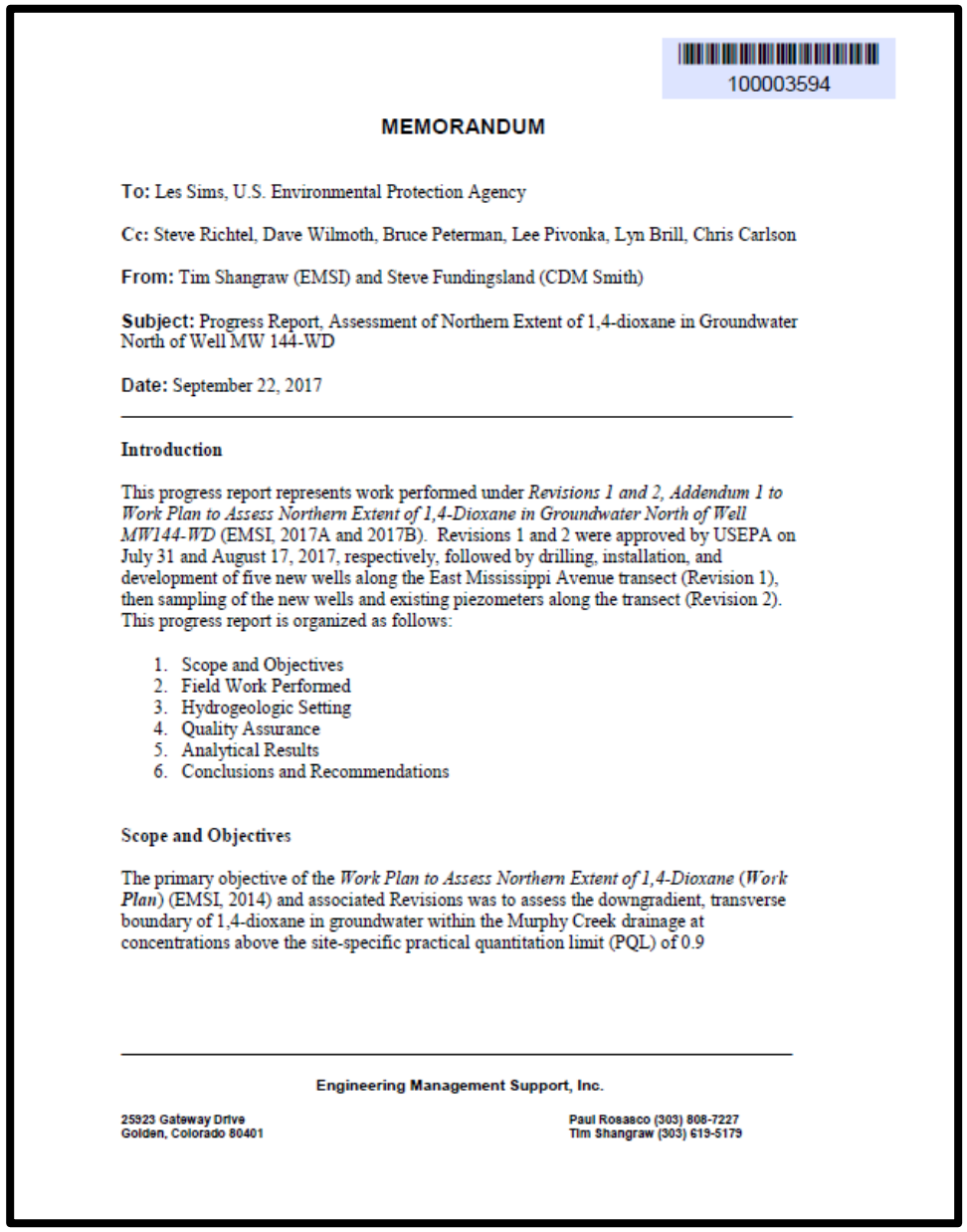
LOWRY LANDFILL SUPERFUND SITE

Technical Discussion:

WSD Progress Report, Assessment of Northern Extent of 1,4-dioxane in Groundwater North of Well MW 144-WD – September 22, 2017

Topics:

- What is this document?
- Summary of content
- EPA's comments on the document
- Questions?



100003594

MEMORANDUM

To: Les Sims, U.S. Environmental Protection Agency

Cc: Steve Richtel, Dave Wilmoth, Bruce Peterman, Lee Pivonka, Lyn Brill, Chris Carlson

From: Tim Shangraw (EMSI) and Steve Fundingsland (CDM Smith)

Subject: Progress Report, Assessment of Northern Extent of 1,4-dioxane in Groundwater North of Well MW 144-WD

Date: September 22, 2017

Introduction

This progress report represents work performed under *Revisions 1 and 2, Addendum 1 to Work Plan to Assess Northern Extent of 1,4-Dioxane in Groundwater North of Well MW144-WD* (EMSI, 2017A and 2017B). Revisions 1 and 2 were approved by USEPA on July 31 and August 17, 2017, respectively, followed by drilling, installation, and development of five new wells along the East Mississippi Avenue transect (Revision 1), then sampling of the new wells and existing piezometers along the transect (Revision 2). This progress report is organized as follows:

1. Scope and Objectives
2. Field Work Performed
3. Hydrogeologic Setting
4. Quality Assurance
5. Analytical Results
6. Conclusions and Recommendations

Scope and Objectives

The primary objective of the *Work Plan to Assess Northern Extent of 1,4-Dioxane* (*Work Plan*) (EMSI, 2014) and associated Revisions was to assess the downgradient, transverse boundary of 1,4-dioxane in groundwater within the Murphy Creek drainage at concentrations above the site-specific practical quantitation limit (PQL) of 0.9

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Available online: https://semspub.epa.gov/work/08/100003594.pdf
Or internet search by title

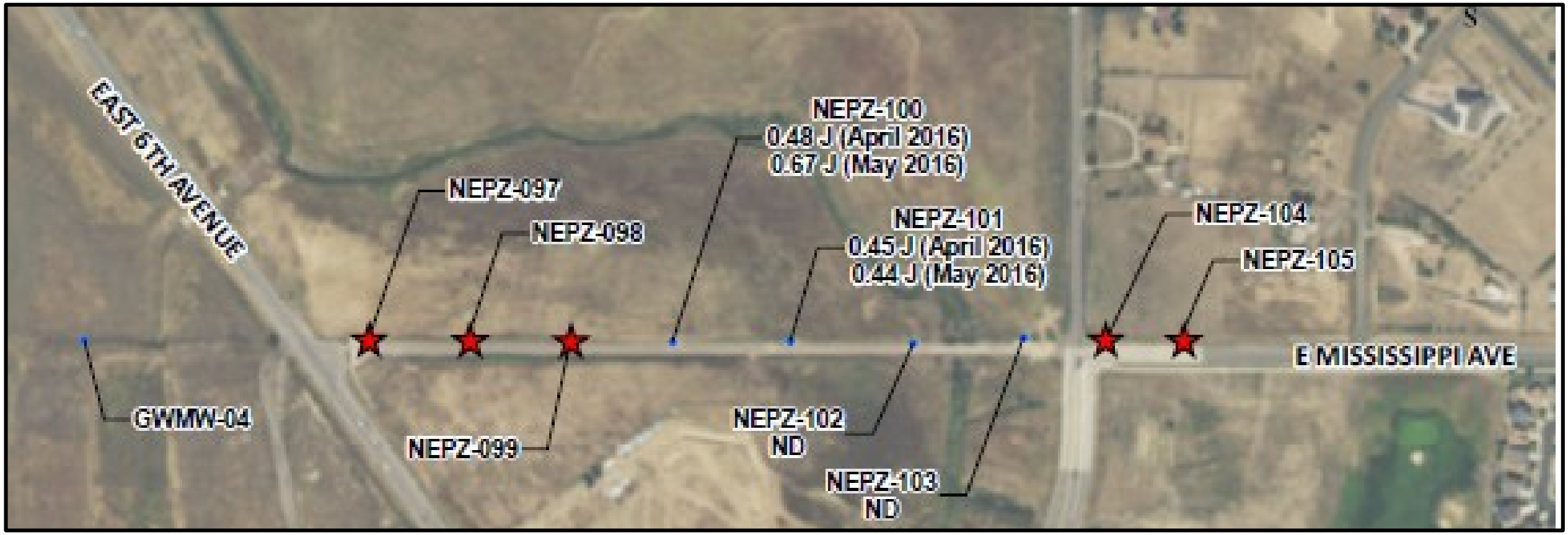
What is this document?:

Description of work performed by the WSD's under *Work Plan to Assess Northern Extent of 1,4-Dioxane in Groundwater North of Well MW144-WD and Revisions 1 and 2, Addendum 1*

- **Work Plan (11/10/14) Objective:** assess the northern extent of 1,4-dioxane in shallow groundwater to 0.35 µg/L (CO groundwater standard) *or* the site practical quantitation limit (PQL), whichever is higher. The PQL is 0.9 µg/L (higher than 0.35 µg/L and thus the relevant value for next step determinations according to the work plan).
  - Involved installing a temporary well transect perpendicular to the presumed direction of groundwater flow approximately 1,000 feet north of well MW144-WD. *Transect wells have been drilled and sampled at East Mississippi Avenue.*
  - If sampling verifies that 1,4-dioxane concentrations are below 0.9 µg/L, a permanent monitoring well will be installed in the center of the most apparent flow path. *A permanent monitoring well has been drilled close to the piezometer with the highest concentrations in the transect (March 5, 2018).*
  - Additional wells may be required to determine the lateral extent of 1,4-dioxane if detections are above 0.9 µg/L. *Detections were below 0.9 µg/L.*
- **Revision 1, Addendum 1 (7/27/17):** Required installation of three wells (NEPZ-99, NEPZ-98, and NEPZ-97) to the west of piezometer NEPZ-100, and two wells (NEPZ-104 and NEPZ-105) to the east of piezometer NEPZ-103 and sampling of these wells for 1,4-dioxane and VOCs. Clarified that sample concentrations will be estimated between the analytical method detection limit (MDL) of 0.15 µg/L and the PQL (0.9 µg/L) ("J-value" data).
- **Revision 2, Addendum 1 (8/17/17):** Added sampling of the four pre-existing NEPZ piezometers (NEPZ-100, 101, 102, and 103) and the five newly-installed NEPZ wells (NEPZ-97, 98, 99, 104, and 105) to obtain a full set of contemporaneous data from all nine piezometers and wells along the transect.

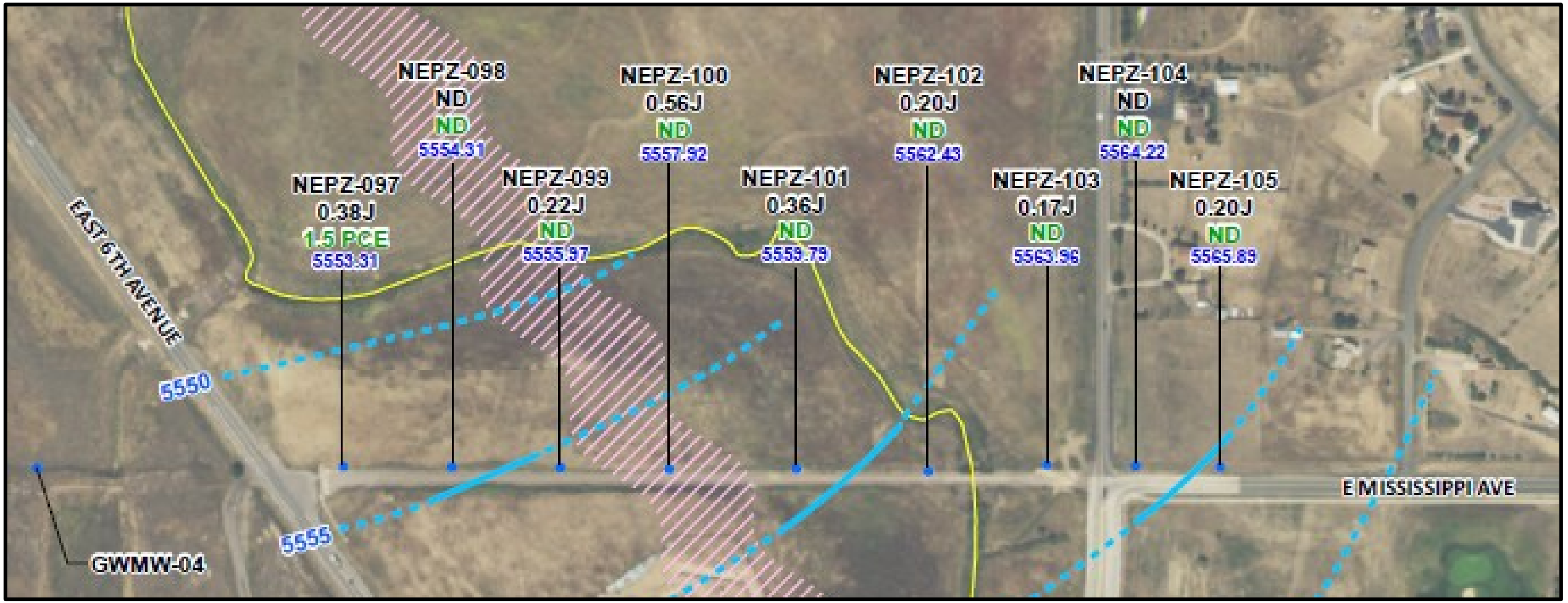
Summary of Content – Work Performed:

2015: Concentrations measured in East Mississippi Ave. piezometer transect were between the analytical method detection limit (MDL) of 0.15 µg/L and PQL of 0.9 µg/L (estimated, J-value data).
4 piezometers (NEPZ-100, NEPZ-101, NEPZ-102, and NEPZ-103) were installed and sampled for 1,4-dioxane.



Summary of Content – Work Performed:

2017: Installation of three more wells (NEPZ-99, NEPZ-98, and NEPZ-97) to the west of piezometer NEPZ-100, and two more wells (NEPZ-104 and NEPZ-105) to the east of piezometer NEPZ-103, as shown below (figure 1 in report). Wells were sampled for 1,4-dioxane (black) and VOCs (green).



Summary of Content –WSDs' Recommendations:

1. Quarterly collection of water level data from wells and piezometers along the East Mississippi Ave transect, and from wells WD144-WD, WD145-WD, and MW142-WD to assess and confirm the potentiometric surface and groundwater movement over the course of a year
2. Collect and analyze groundwater samples from the transect in 3rd Quarter 2017 to confirm results of the initial sampling as required in the Work Plan.
3. Install a permanent groundwater monitoring well adjacent to existing piezometer NEPZ-100 *(completed March 5, 2018)* and sample it for 1,4-dioxane.

EPA Response Letter (2/13/2018) Summary:

- EPA does not object to the WSD's recommended placement of a permanent monitoring well in the East Mississippi Avenue transect as a next step (well was drilled March 5, 2018).
- Next steps for delineation of the north end 1,4-dioxane plume remain an ongoing discussion to be partially informed by sampling results from this well.
- EPA clarifies:
  - Sample analysis is to be conducted to estimated values below the PQL (as depicted on figures)
  - Delineation needs include a vertical component as specified in the FYR
- EPA requests clarity on:
  - Selection of weathered/un-weathered interface depth and other features on lithologic logs
  - Importance of inferred plume boundary lines vs. solid lines
  - Potential labeling errors in document

Relevant Document Links:

- WSD Progress Report, Assessment of Northern Extent of 1,4-dioxane in Groundwater North of Well MW 144-WD – September 22, 2017: https://semspub.epa.gov/work/08/100003594.pdf
- EPA Memorandum - Progress Report and Work Plan Addendum to Work Plan (Including Revisions 1 and 2) to Assess Northern Extent of 1,4-Dioxane in Shallow Groundwater (North of Well MW144-WD) Lowry Landfill Superfund Site – February 13, 2018: https://semspub.epa.gov/work/08/100003375.pdf
- WSD Work Plan to Assess Northern Extent of 1,4-Dioxane in Shallow Groundwater (North of Well MW144-WD) – November 10, 2014: https://semspub.epa.gov/work/08/100003374.pdf
    - Revision 1, Addendum 1 to Work Plan to Assess Northern Extent of 1,4-Dioxane in Groundwater North of Well MW144-WD – July 27, 2017: https://semspub.epa.gov/work/08/100003367.pdf
    - Revision 2, Addendum 1 to Work Plan to Assess Northern Extent of 1,4-Dioxane in Groundwater North of Well MW144-WD – August 17, 2017: https://semspub.epa.gov/work/08/100003368.pdf

Concentration Comparison:

To visualize the comparative concentrations relevant to the site, the following may be helpful but does not provide any information for understanding toxicity.

- 1/2 teaspoon of sugar into 2-liter bottle of soda = appx 1 gram per liter (g/L)
- One grain of sugar in a 20oz soda = appx 1 milligram per liter (mg/L).
  A 20oz of soda has appx 32.5 tsp sugar. Coke is 106,000 mg/L
- Two grains of sugar in a 4-person hot tub = appx 1 microgram per liter (µg/L).